

L 13366-63

ACCESSION NR: AP3003300

dielectric properties<sup>2</sup> equal to those of polystyrole. However, they possess higher thermal stability (112-125C) and a high electric rigidity (34-37 kv/mm). These factors distinguish them not only from polystyrole, but also from the polymers of chloro-derivatives of styrole. The stability of dielectric properties of the polymers have been established for a wide temperature interval of 20 to 140C. The molecular weight was determined by the osmotic method. "The authors are grateful to L. N. Veselovskaya for her determination of molecular weights." Orig. art. has: 3 tables.

ASSOCIATION: none

SUBMITTED: 00

DATE ACQ: 30Jul63

ENCL: 00

SUB CODE: MA

NO REF SOV: 008

OTHER: 006

Card 2/2

ACC NR: AP6018121

(N) SOURCE CODE: UR/0191/66/000/006/0012/0015

AUTHOR: Bezborodko, G. L.

ORG: none

TITLE: Aggregation of highly dispersed powders of amorphous thermostable polymers and copolymers obtained by emulsion polymerization

SOURCE: Plasticheskiye massy, no. 6, 1966, 12-15

TOPIC TAGS: amorphous polymer, emulsion polymerization, polystyrene, physical chemistry, moisture measurement, chemical drying, chemical kinetics, dielectric property

ABSTRACT: Aggregation of amorphous thermostable resins produced by emulsion polymerization to reduce moisture content was accomplished by heating the finely dispersed powders for  $\frac{1}{2}$ -3 hours in water under 1.5-3 atm pressure at temperatures above 100°C. The effective temperature is in the range of the transition temperature from the glass to the highly elastic state of the polymer. The method is not applicable to polyolefins since they fuse. Successful tests were run with polydichlorostyrene, polydimethylstyrene, alpha-methylstyrene, polyvinylpyrrole, polyvinyltoluol and copolymers of styrene. The heating

Card 1/2

UDC: 678.746.22-492.2:536.495

L. Katsov

ACC NR: AP6018121

accompanied by washing with strong agitation removed the emulsifier and other impurities. Hence the coarser, but not lumpy, polymer had improved dielectric properties, the other properties remaining essentially unchanged. A study of the drying kinetics and of the power consumption showed drying of aggregate required only about one-sixth of the energy needed if highly dispersed polymer were dried. Work (on trying to reduce moisture by using mixed emulsifiers and freezing) was conducted under the direction of O. L. Katsov (deceased). A group of workers headed by M. M. Lebedev took part in the work. Work (kinetics and power consumption evaluation) was done by T. Pozdnyakov. Orig. art. has: 7 tables and 2 figures.

SUB CODE: 07,11/ SUBM DATE: none/ ORIG REF: 006/ OTH REF: 001

ACC NR: AP6025619

SOURCE CODE: UR/0413/66/000/013/0076/0076

INVENTOR: Bezborodko, G. L.

ORG: none

TITLE: A method for obtaining amorphous powders of heat-resisting polymers and copolymers. Class 39, No. 183377

SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no. 13, 1966, 76

TOPIC TAGS: polymer, copolymer, polymerization, monomer, heat resistant plastic

ABSTRACT: This Author Certificate presents a method for obtaining amorphous powders of heat-resisting polymers and copolymers such as polyparachlorstyrole and the copolymer of the styrole with  $\alpha$ -methylstyrole. The method involves emulsion polymerization or copolymerization of proper monomers, followed by washing with water and of fusing the resulting polymer. To strengthen the powder of the obtained polymer and to lower its water content, the powder is warmed in an autoclave in a hydrous atmosphere while being washed and prior to being fused. The heating is done at temperatures corresponding (for a given polymer) to the temperatures of passing from the glassy to the plastic state.

SUB CODE: 11/07/ SUBM DATE: 16Jul62

Card 1/1

UDC: 678.746.32:66.095.262.3

L 01804-67 EWT(m)/EWP(j) IJP(c) RM

ACC NR: AP6030604 (AN) SOURCE CODE: UR/0413/66/000/016/0092/0093

INVENTOR: Golubeva, A. V. ; Yeremina, Ye. N. ; Sivograkova, K. A. ;  
Bezborodko, G. L. ; Kitner, I. P. ; Shishina, V. P.

ORG: none

TITLE: Method of obtaining shock-resistant plasticized rubber. Class 39,  
No. 185056

SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no. 16, 1966,  
92-93

TOPIC TAGS: butadiene styrene rubber, copolymerization, rubber, plasticized  
rubber

ABSTRACT: An Author Certificate has been issued for a method of obtaining a  
shock-resistant plasticized rubber from a styrene copolymer, acrylnitrile, and  
butadieneacrylnitrile rubber by means of suspension copolymerization of the proper  
monomers and rubber. To increase the light stability and heat resistance of  
plasticized rubber, the process is carried out in the presence of butylacrylate  
rubber, which is taken in amounts of 2-5%. [Translation] [NT]

1/1 SUB CODE: 11/ SUBM DATE: 13Apr62/ UDC: 678.746.22-139

L 146259-66 ENT(m)/T/EMP(i) IJP(c) WW/RM/JWD

ACC NR: AP6030603 (A.N) SOURCE CODE: UR/0413/66/000/016/0092/0092

INVENTOR: Golubeva, A. V.; Yeremina, Ye. N.; Sivograkova, K. A.;  
Bezborodko, G. L.; Kitner, I. P.; Shashina, V. P. 2/

ORG: none

TITLE: Preparative method for styrene-acrylonitrile copolymers.  
 Class 39, No. 185055 15

SOURCE: Izobreteniya, promyshlennyye obraztsey, tovarnyye znaki, no. 16,  
 1966, 92

TOPIC TAGS: styrene,acrylonitrile,copolymer, suspension copolymeriza-  
tion, nitrile rubber, impact resistant material

ABSTRACT: An Author Certificate has been issued for a method for 15  
 preparing styrene-acrylonitrile copolymers. To impart impact resistance  
 to the plasticized product, the monomers are copolymerized in suspension  
 in the presence of 3—10% nitrile rubber. [B0]

SUB CODE: 11/ SUBM DATE: 13Apr62/ 15

Card 1/1 mjs UDC: 678.746.22-139

BEZBOROD'KO, M. D.

"Viscous Properties and the Behavior of Greases in Rolling Bearings." Sub 19 Mar 51, Military Order of the Lenin Academy of Armored and Mechanized Troops of the Soviet Army imeni I. V. Stalin.

*by hand of M. D.*  
Dissertations presented for science and engineering degrees in Moscow during 1951.

SO: Sum. No. 480, 9 May 55.





Bezborod'ko, M. D.

800 25

539.62  
/5054. Viscous properties of plastic lubricants and rotational resistance of anti-friction bearings. G. V. VINOGRADOV AND M. D. BEZBOROD'KO. *Dokl. Akad. Nauk SSSR*, 90, No. 6, 1019-22 (1953) In Russian. English translation, *U.S. National Sci. Found. NSF-tr-165*.

Shows, experimentally, that with viscous (grease) lubricants, the part of a bearing resistance which depends upon the lubricant and also varies with temperature and speed may be determined uniquely in terms of the viscosity-temperature and viscosity-speed characteristics of the lubricant. J. W. MENTER

VINOGRADOV, G.V.; KUSAKOV, M.M.; ~~BEZBORODKO~~ M.D.; PAVLOVSKAYA, N.T.;  
ZHELENSKIY, V.D.; KREYN, S.M.; BOROVAYA, M.S.

Wear-preventive properties of petroleum oils. Khim.i tekhn.tepl.  
no.1:61-3 of cover Ja '56. (MLRA 9:7)  
(Petroleum)

BEZBORODKO, M.D.

2485. PHOSPHO-ORGANIC OIL ADDITIVES. Vinogradov, G.V.

Bezborodko, H.D., Kirova, O.E., Sanin, P.I. and Ulyanova, A.Y.

Trakht, I. Zhurnal Khim. Tekhnol. Fuel. Tekhnol. (Mosc. Univ. Ser. Chem.), 1962, vol. 1, no. 1505, 1506.

The phosphorus acid derivatives on the metal surface. The test was followed by a periodic microscopic examination of the metal surface. The additive was 5% by weight dissolved in the lubricant. The additive which has  $d_{40}^{20} 0.3812$ , molecular weight 543,  $\eta_{sp}/c$  1.25.

100<sup>o</sup> 750, 105, and 14.5 centistokes. The compounds tested were: tributyl phosphite (I), tributyl phosphate, tributyl diethyl phosphite, tributyl phosphite, tributyl triphosphate, tributyl diethyl phosphite, tributyl phosphite, and tributyl tetrakisphosphate. The most effective in reducing  $\mu$  was tributyl phosphite. An increase in the temperature of the test from 30<sup>o</sup> K. to 300 K. The coefficient of the balls from 0.7 cP/sec to 1.5 cP/sec. The coefficient of the balls from 0.7 cP/sec to 1.5 cP/sec. For each additive, the friction coefficient was independent of the concentration up to the forming point. Supplementing the additives with either dibenzyl or dihexyl sulphide (0.3 g/100 cP/sec), slightly lowered the values of  $\mu$  and of the wear when  $\mu < 0.5$ . Addition of benzyl chloride, under similar conditions, increased  $\mu$  and the wear. Similarly, tetraethylpropyl-phosphate increased  $\mu$  and the wear. The results, in general, are in agreement with the results of other authors. The additive which has  $d_{40}^{20} 0.3812$ , molecular weight 543,  $\eta_{sp}/c$  1.25, which was most conspicuous when the action of the additive was most effective at the start of the forming.

522 BORCO RO, 14, 4

Phosphoric oil additives G. V. Vinogradov, M. D. Barbov, O. E. Morozova, P. I. Sazon, and A. V. Vinogradov. *Zh. Fiz. Khim.* 1956, No. 3, 47-50.

The effect of  $H_3PO_4$  and  $H_2PO_4$  deriva. on the wear of steel balls in motion and under pressure ( $P$ ) at 20-91° was followed by a periodic analysis of the oil and by microscopic examn. of the metal surface (cf. C.A. 50, 110084). The amt. of additive used was 3% by wt. dissolved in the naphthenic-paraffinic lubricating oil MC-20 which has  $d_{40}^{25}$  0.8812, mol. wt. 543,  $\eta_{sp}$  1.4859, viscosity at 20, 50, and 100° 750, 105, and 14.5 centistokes. The compds. tested were: tributyl phosphite (I), tributyl phosphate, tributyl dithiophosphate, tributyl trithiophosphate, tributyl thiophosphate, tributyl dithiophosphate, tributyl trithiophosphate, and tributyl tetrathiophosphate; the last named compd. was the most effective in reducing wear without jamming, at axial pressures from 30 kg. to 300 kg. An increase in the temp. from 20° to 91° and in the sliding rate of the balls from 7.7 cm./sec. to 45 cm./sec., lowered  $P_1$  (the load-jamming coeff.) for MC-20 by 1.5 and for an oil contg. 0.1 mole./l. of I by 1.85. For each additive, the friction coeff. was independent of the concn. up to the jamming point. Supplementing the additives with either dibenzyl or dihexyl sulfide (0.5 mole/l.) slightly lowered the values of  $P_1$  and of the wear when  $P < P_1$ . Addn. of benzyl chloride, under similar conditions, increased  $P_1$  and gave very small wear at  $P < P_1$ . Similarly, tetra-*tert*-propyl-bisdithiophosphate and dibenzyl sulfide gave good results. An analysis of the function of the additives showed that  $P$  in these compds. provided high load-jamming characteristics, while S improved the wear with a synergistic effect at  $P < P_1$  which was most conspicuous when the action of the S compd. took effect at the start of the jamming.

A. P. Kottoby

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1.4859

*Bezborod'ko, M. D.*

AUTHOR: Gvozdev, M.M., Bezborod'ko, M.D. and Vinogradov, G.V.

TITLE: An investigation of properties of plastic lubricants (greases) using high speed cinephotography. (Issledovaniye svoystv plasticheskikh smazok metodom vysokoskorostnoy kinosyemki.)

PERIODICAL: "Khimiya i Tekhnologiya Topliya i Masel" (Chemistry and Technology of Fuels and Lubricants) 1957, No.4, pp.41-47 (USSR)

ABSTRACT: The behaviour of grease in a bearing under different working conditions was studied using high speed cinephotography. The description of the apparatus (Fig.1) and some of the photographs obtained (Figs.2-5) are given. It is concluded that the method is suitable for studying deformation processes of plastic dispersed systems. There are 5 figures and 4 Slavic references.

Card 1/1

ASSOCIATION: Tank Academy imeni I.V. Stalin (Bronetankovaya Akademiya imeni I.V. Stalina).

AVAILABLE:



BEEBOROD'KO, M. D., PAVLOVSKAYA, N. T., VINOGRADOV, G. V.

"Wear-Resistance Properties and Oxidizability of the Naphthene-Paraffin Fractions of Viscous and Low-Viscosity Petroleum Oils" p. 198

Composition and Properties of the High Molecular Weight Fraction of Petroleum; Collection of Papers, Moscow, Izd-vo AN SSSR, 1958. 370pp. (Data nefti)  
2nd Collection of papers publ. by AU Conference, Jan 56, Moscow.

Since friction tests show the importance of oil composition, in particular of the NPF, a through study was made of this fraction. The NPF of transformer oil and of MS-20 were used in these tests. Results show that it is possible to achieve an exact differentiation of the various naphthene-paraffin fractions obtained from petroleum oils with different viscoisty indexes. It was shown that the NPF of low-viscosityoils have a lower oxidation stability. There are 5 figures and 3 Soviet references.





SOV/24-58-12-17/27

AUTHORS: Bezborod'ko, M.D., Vinogradov, G.V.,  
Pavlovskaya, N.T. and Tsurkan, I.G. (Moscow)

TITLE: Anti-Wear Properties of Lubricants and the Influence of  
Various Factors on the Anti-Wear Properties of  
Petroleum Oils (O protivnoiznosnykh svoystvakh  
smazochnykh materialov i o vliyani razlichnykh  
faktorov na protivnoiznosnyye svoystva neftnykh masel)

PERIODICAL: Izvestiya Akademii Nauk, Otdeleniye Tekhnicheskikh  
Nauk, 1958, Nr. 104-114 (USSR)

ABSTRACT: The authors discuss the required properties of lubricants.  
They note that mercury and some liquid alloys could  
satisfy the requirements of a lubricant for many metals  
and go on to describe their experimental work with these  
materials. The four-ball testing machine described in  
the literature (Ref.2) was used. Experiments were made  
in air with 1/2" spheres of ball-bearing chromium steel  
and of beryllium bronze, the lubricants being mercury  
and Wood's alloy. Fig.1 shows wear at 20°C and speeds  
of 21 and 57 cm/sec for steel/steel and bronze/bronze as  
functions of load and Fig.2 shows the curves for liquid  
Wood's alloy at 80, 90 and 200°C. Alloys of Wood's

Card 1/5

107/24-58-12-17/27

Anti-Wear Properties of Lubricants and the Influence of Various  
Factors on the Anti-Wear Properties of Petroleum Oils

alloy with 40% mercury, especially if containing 2%  $\text{MoS}_2$  proved very effective lubricants at very heavy loads. The friction versus time curves for mercury and Wood's alloy lubrication of steel (Fig.3) and beryllium-bronze (Fig.4) spheres show that a considerable time is required for a steady state to be reached; the authors associate this with the removal of surface oxide films. They go on to deal with lubrication by petroleum oils. In their experiments the non-polar naphthene-paraffin fractions of a bright stock of mixed Surakhansk and Karachukhursk oils and of transformer oil were used. The kinetics of steel wear were studied at 50 and 150°C and sliding rates of 23 and 46 cm/sec and the effects of loading (Fig.5), one series (curve 6) being carried out above the critical load value. In view of the results obtained single-minute tests were adopted. These included tests in which various atmospheres (air, nitrogen, oxygen, argon and superheated steam) were provided and Fig.6 shows typical results for steel

Card 2/5

DOV/24-78-12-17/27

Anti-Wear Properties of Lubricants and the Influence of Various  
Factors on the Anti-Wear Properties of Petroleum Oils

obtained at 50°C and a speed of 23 cm/sec with the bright-stock material. The curves show that the atmosphere greatly affects both the dry friction and the anti-wear properties of the lubricant. At 200°C results obtained with oxygen were almost the same as those in fused eutectic mixtures of  $\text{NaNO}_3$ ,  $\text{KNO}_3$  and  $\text{NaNO}_2$ . Similar results were obtained with transformer oil. When spheres of 18% Cr semi-ferritic stainless steel were used the nature of the atmosphere affected the wear curves differently. A selection of curves for spheres of this material and other spheres, various lubricants and test conditions is given in Fig.7. With spheres merely coated with oil, both oil oxidation and surface hardening of steel were more intense than when oil was present in bulk. To find the influence of the scale factor tests were carried out with standard ball-bearing spheres from 5.95 to 19.05 mm in diameter, at speeds of 5-86 cm/sec and with the bulk of the oil at room temperature. The authors discuss the temperature and friction effects and show that there should be a

Card 3/5

007/24-58-12-17/27

Anti-Wear Properties of Lubricants and the Influence of Various  
Factors on the Anti-Wear Properties of Petroleum Oils

critical temperature corresponding to the critical load. They deduce dimensionless equations and give results of experiments in which the information on the movement of the oil (required for applying the equations) was obtained by following the movement of ochre particles in the oil during a test. For treating the data the authors used an experimental relation between the friction coefficient and speed of sliding for sub-critical loads (Fig.8) and they show calculated and experimental values for the influence of the scaling factor, speed of sliding and friction coefficient on the critical loads (Fig.9 and table), the relations obtained being similar to those for gears (Ref.6). Fig.10 shows the results of the investigation of the temperature dependence of the critical load for various oils with 1/2" chromium ball-bearing steel balls. Metallographic study of sections cut slantwise through worn spots on the steel balls in the direction of sliding confirmed the expectation that at temperatures

Card 4/5

SOV/24-58-12-17/27

Anti-Wear Properties of Lubricants and the Influence of Various  
Factors on the Anti-Wear Properties of Petroleum Oils

of the order of 200°C the nature of the atmosphere was  
the main factor. The authors maintain that in  
evaluating the lubricating properties of oils the nature  
of the wear process must be taken into account and  
briefly discuss this. There are 10 figures, 1 table  
and 8 references of which 7 are Soviet and 1 English.

SUBMITTED: 7th December 1957.

Card 5/5

AUTHORS: Pavlovskaya, N. T., Kos'kun, G. I. SOV/32-24-7-27/65  
~~Bezborod'ko, M. D.~~

TITLE: A Method of the Preparation of Microsections for the Metallographic Analysis of the Places of Wear (Metodika izgotovleniya shlifa dlya metallograficheskogo analiza pyatna iznosa)

PERIODICAL: Zavo'skaya Laboratoriya, 1958, Vol. 24, Nr 7, pp. 840 - 841 (USSR)

ABSTRACT: This investigation was conducted according to suggestions by Professor Vinogradov and Professor B.I.Kostetskiy. A new method was used, which consisted of investigating the lubricating power of oils in machines with four balls. Polished sections showing the cross-section of the place of wear were prepared. A special steel binding, which is given in a figure, was used. The final polishing of the microsection after the stress test is made in the presence of chromium oxide and aluminium oxide. The etching is carried out with a 4% nitric acid solution in alcohol. It appears from the micrographs of some sections that the metal surface of ~~Shkh6~~ steel changes considerably at 200° and certain

Card 1/2

A Method of the Preparation of Microsections for the  
Metallographic Analysis of the Places of Wear

SOV/32-24-7-27/65

friction and load conditions, this change being dependent upon  
the gas and oil medium. Data are given for an argon and an  
oxygen atmosphere with transformer oil. There are 2 figures.

ASSOCIATION: Institut nefiti Akademii nauk SSSR (Petroleum Institute, AS USSR)

Card 2/2

AUTHORS: Bezborod'ko, M. D., Pavlovskaya, N. T., Vinogradov, G. V. SOV/32-24-10-40/70

TITLE: A Friction Machine for Testing the Lubrication Properties of Petroleum Products (Mashina treniya dlya ispytaniya smazochnoy sposobnosti nefteproduktov)

PERIODICAL: Zavodskaya Laboratoriya, 1958, Vol 24, Nr 10, pp 1267-1269 (USSR)

ABSTRACT: The machine described in the present paper was devised by V. D. Zelenskiy; later on the authors of this paper completed the work on it. From the schematic representation it may be seen that the machine consists of the friction unit, the loading device, the drive, and the automatic recording instrument. With a shaft revolution of 600 revs/min. an illumination by two neon lamps SN-1, and at higher speeds one by a high-voltage neon lamp takes place. The maximum relative error in the determination of the revolution speed is  $\pm 1\%$ . From a diagram of the friction unit and its description it may be seen that a heating up to  $95^{\circ}$  can take place by means of a thermostat TS-24. A heating to  $300^{\circ}$  can be achieved by an electric heater, with a pyrometric millivoltmeter of the type MRS-54, and a transformer of the type L-9 being used. The friction unit is

Card 1/2



SOV/32-24-10-40/70  
A Friction Machine for Testing the Lubrication Properties of Petroleum  
Products

loaded by a hydraulic arrangement containing a manometer of the type MS-1. The spindle oil AM is used. The measurement of the places of wear is carried out by means of a microscope MP-5. The reproducibility of the experimental results was investigated with a petroleum paraffin fraction of the oil MS-20 according to the one-minute method (Ref 3) at  $n=600$  revs/min. There are 3 figures and 3 references, which are Soviet.

ASSOCIATION: Institut nefti Akademii nauk SSSR (Petroleum Institute AS USSR)

Card 2/2

28 (5)

05745

AUTHORS: Bezborod'ko, M. D., Krivoshein, G. S. SOV/32-25-10-34/63

TITLE: On the Evaluation of Results of ~~Tests~~ for Pitting

PERIODICAL: Zavodskaya laboratoriya, 1959, Vol 25, Nr 10, pp 1238 - 1240 (USSR)

ABSTRACT: An evaluation of the results obtained when investigating the influence exercised by lubricants on pitting was carried out by means of mathematical statistics. The experiments were carried out on a four-ball frictional machine (Ref 1) with a friction mechanism and a liquid thermostat (Ref 2). Work was carried out at 20°, a rotational speed of the machine shaft of 1500 to 3000 r.p.m., and with a load of 300 kg. Balls (diameter 12.7 mm) made from steel of the type ShKh6 and having a hardness of 62 and 56 R<sub>S</sub> were used as frictional bodies, a softer ball rolling on three hard ones. Diesel oil (GOST 7449-49) and the naphthene-paraffin fraction of MS-14 oil (with and without the addition of MoS<sub>2</sub> and 1 and 2% of preparations from colloidal iron (Ref 3)) was used as lubricant. The three lower balls were completely covered by the lubricant. The frequencies observed (up to the occurrence of the pittings) were adapted to

Card 1/2

On the Evaluation of Results of Tests for  
Pitting

05745

SOV/32-25-10-34/63

the theoretical frequencies by means of the Gaussian law and the criterium of agreement was determined, according to which the straggling of test results were found to obey the normal distribution law, which was also graphically confirmed (Figs a,b) by the agreement of results with those obtained by Barwell (Ref 1) and Scott (Ref 5). The diagram of the probability distribution may be represented in form of a straight line. According to the methods of mathematical statistics the results obtained for different lubricants can be compared (Table 2). The influence exercised by the additions to the fraction of the oil of the type MS-14 upon the pitting was determined by means of the distribution according to Styutent (Ref 4), (Table 2). Additions of  $\text{MoS}_2$  considerably increase resistivity to pitting, whereas small additions of colloidal iron showed no particular effect. Papers by V. I. Romanovskiy (Ref 4) are mentioned in the text. There are 2 figures, 2 tables, and 5 references, 3 of which are Soviet.

Card 2/2

31976  
S/081/61/000/023/049/061  
B107/B110

11,9000 also 1583

AUTHORS: Bezborod'ko, M. D., Pavlovskaya, N. T., Arkharova, V. V.

TITLE: Effect of composition and nature of gaseous media on the antifrictional properties of mineral lubricating oils

PERIODICAL: Referativnyy zhurnal. Khimiya, no. 23, 1961, 453, abstract 23M115 (Tr. 3-y Vses. konferentsii po treniyu i iznosu v mashinakh. M., AN SSSR, v. 3, 1960, 177-186)

TEXT: A four-ball machine with a special friction joint permitting the introduction of gases was used for the investigation. The effect of gaseous media (air, argon, nitrogen, oxygen) on the antifrictional properties of the following lubricants was studied; naphthene - paraffin and aromatic fractions of oils and oil extracts boiling in a narrow range which were produced in the Groznenskiy zavod (Grozny works), Bakinskiy zavod (Baku works), and Novo-Kuybyshevskiy zavod (Novo-Kuybyshev works). Various metals,  $\text{MnX6}$  (ShKh6) and  $\text{Mn229}$  (EI229) steels and  $\text{BrB2}$  (BrB2) beryllium bronze were tested at high specific pressures and temperatures. It has been found that the nature of the gaseous media has an effect upon

Card 1/2

Effect of composition and nature of...

31976  
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B107/B110

the wear of the steels and on the critical load; whereas the mean specific pressures are practically independent of the gaseous medium. On testing oils, the critical load rose when argon was replaced by air and oxygen, but the differences of the mean specific pressures were but slight. The nature of the gaseous medium does affect not only the intensification or retardation of the oxidation processes of the lubricating oils, but has also a strong effect on the structure of the metal in the friction zones. The greatest changes in structure occur in argon medium. [Abstracter's note: Complete translation]

Card 100

35547

S/081/62/000/006/081/117  
B167/B101

11-9000

AUTHORS: Bezborod'ko, M. D., Krivoshein, G. S.

TITLE: Effect of lubricating materials and their additives on the incidence of pitting

PERIODICAL: Referativnyy zhurnal. Khimiya, no. 6, 1962, 539, abstract 6M249 (Sb. "Prisadki k maslam i toplivam". M., Gostoptekhnizdat, 1961, 278-283)

TEXT: The anti-pitting properties of oils have been evaluated on a 4-sphere friction machine, in which the lower spheres were free (under rocking conditions), by noting the time PT required, at constant load until pitting appeared on the track of the upper sphere. The spheres were 12.7mm in diameter, and were made of UX-6 (ShKh-6) steel. The hardness of the lower and upper spheres was 62 and 56 Rc, respectively. The speed of the upper sphere was usually 1500 rpm, the load on the upper spheres was 390 and 300 kg, and the oil temperature was 20 and 80°C. With oils free from additives (oil MC-14 (MS-14)) PT decreased with an increase in temperature from 20 to 150°C, whereas in the presence of additives (oil MT-16 (MT-16))

Card 1/2

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Effect of lubricating materials and ...

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B167/B101

and lubricant Tsiatim-208) PT remained constant between 20 and 80°C. The retardation of pitting by lubricants is shown to depend on the viscosity of the oils, on their chemical composition, and on the presence of additives. The PT values for various oils and their fractions are given below (oil type, temperature, load in kg, and PT in min are listed): tractor transmission (without additive), 80°C, 390, 93; sulphurized tractor transmission, 80°C, 390, 238; MS-14, 80°C, 390, 89; MS-14, 20°C, 300, 89; naphthene-paraffin fraction of MS-14, 20°C, 300, 41; aromatic fraction of MS-14, 20°C, 300, 130; Diesel fuel, 20°C, 300, 13. Addition of an anti-oxidant to synthetic oil lowered its PT 4.5-fold. Addition of 1% of MoS<sub>2</sub> with a particle size <2μ for 95% of the particles increased the PT of mineral oil by a factor of 2-3. The superior anti-pitting properties of mineral oils containing MoS<sub>2</sub> were checked by operating trials in actual transmission systems. [Abstracter's note: Complete translation.]

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Card 2/2

86114

15-6000

S/152/60/000/002/001/002  
B023/B060

AUTHORS: Bazborod'ko, M. D., Vinogradov, G. V., and Pavlov, V. P.

TITLE: Effect of Lubricants and Anti-wear Additives Upon the  
Abrasion Wear of Metals in Sliding Friction

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy. Neft' i gaz. 1960,  
3 - No. 2, pp. 73-79

TEXT: The authors wanted to clarify the effect of lubricants and anti-wear agents upon the abrasion wear of metals in sliding friction. Tests were conducted on a four-ball friction machine (Ref. 6) with balls 12.7 mm in diameter made of UX6 (ShKh6) steel and X18 (Kh18) stainless steel. The steel hardness was 832 kg/mm<sup>2</sup> and 657 kg/mm<sup>2</sup>, respectively. The rubbing speed was 21 cm/sec. UX6 (ShKh6) steel balls 9.52 mm in diameter were tested with V. P. Pavlov's sliding machine (Ref. 7). The sliding rate in this case amounted to 41.5 cm/sec. The tests were conducted at room temperature by the "one-minute" method. The balls were first subjected to stress, and the machine was then started. The abrasive agents used were electrocorundum micropowders M7(M7), M10(M10), M14(M14), and M28 (M28).

Card 1/3



Effect of Lubricants and Anti-wear Additives  
Upon the Abrasion Wear of Metals in Sliding  
Friction

36144  
S/152/60/000/002/001/002  
B023/B060

and boron carbide micropowders M3(M3), M5(M5), and M7(M7), produced at the Petergofskiy chasovoy zavod (Petergof Watch Factory). The size of the micropowder particles conformed with ГОСТ 3258-46 (GOST 3258-46), and in the case of electrocorundum particles it was correspondingly 7-5, 10-7, 14-10, and 28-20 $\mu$ . The boron carbide particles were correspondingly 3-5, 5-3, 7-5 $\mu$  large. The mentioned micropowders contained 60-70% main fraction. Mica or silica gel of at most 14 $\mu$  were introduced in some of the tests. The micropowders were all added to the lubricants while stirring. The lubricants used were mixtures of plastic lubricants with oils of medium viscosity or with naphthene-paraffin fractions. AY(AU) and MC-14 (MS-14) oils were used as the liquid hydrocarbon media. Dibenzyl sulfide as an anti-wear substance was added to the mixtures in an amount of 2.46 percent by weight. The results obtained by the authors from their tests are in agreement with observed wear resistance of the sulfidized rubbing surface in the presence of abrasives (Ref. 7). It may be seen from Fig. 4 that in all cases the introduction of dibenzyl sulfide reduces friction in the gripping period. The authors were able to establish that the specific effect of the abrasive in the lubricants is to a large extent dependent

Card 2/3

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Effect of Lubricants and Anti-wear Additives S/152/60/000/002/001/002  
Upon the Abrasion Wear of Metals in Sliding B023/B060  
Friction

both upon the nature of the metal forming the body subjected to friction and on the composition of the lubricants. As the friction coefficients increase in the presence of abrasives, the anti-wear effect of sulfur compounds also increases. In other words, plastic sulfides are formed by the sulfur compounds on the friction area with gripping of the latter, whereby the real contact area of friction is increased, which in its turn causes a reduction in the intensity of the initial gripping process. There are 4 figures and 9 references: 7 Soviet and 2 US.

ASSOCIATION: Voyennaya ordena Lenina akademiya bronetankovykh voysk im. I. V. Stalina (Military "Order of Lenin" Academy of Armored Tank Troops imeni I. V. Stalin) ✓

SUBMITTED: August 6, 1959

Card 3/3

S/152/60/000/006/001/001  
B024/B076

AUTHORS: Vinogradov, G. V., Arkharova, V. V., Bezborod'ko, M. D.  
TITLE: Antiwear and Antifriction Properties of Structural Group  
Fractions of Mineral Oils  
PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy Neft' i gaz, 1960,  
3- No. 6, pp. 81-87

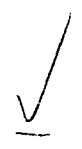
TEXT: The authors investigated how far the nature of the structural group fractions of mineral oils affects their antiwear and antifriction properties in the presence of oxidizing gas media. Already in previous short time tests in the open, under seizure load conditions, with a number of low viscosity mineral oils as well as with naphthene-paraffinic fractions an oxidizing of the hydrocarbon medium was ascertained (Ref. 4). Also the tests with various naphthene-paraffinic fractions in O<sub>2</sub> medium (Ref. 5) showed that the oxidation process between steel and hydrocarbons retards or interrupts the seizure of friction surfaces. The main purpose of the present work is to ascertain, according to the results of the above

Card 1/3

Antiwear and Antifriction Properties of  
Structural Group Fractions of Mineral Oils

S/152/60/000/006/001/001  
B024/B076

mentioned open air tests (Refs. 1-6), what influence the fractional composition of mineral oils of various origins as well as the nature of gas media exercise on the wear and friction of steel. Numerous hydrocarbon fractions were tested and the mineral oils were classified in structural groups according to the methods published before (Refs. 7-9). A series of fractions were made available by M. S. Borovaya. The tests were made on the four-ball machine; all samples tested are included in Tables 1 and 2, and the particularly typical cases are represented in Figs. 1 and 2, (Ref. 7). In respect of the naphthene-paraffinic fractions a quality analysis of two oil grades (Refs. 11, 12) was made before and after the tests in order to ascertain the nature of the oxidation products. The comparison of various test results with the previous ones shows that the total sulphur content of mineral oils is in no way characteristic of their antiwear and antifriction properties. On the basis of tests with oxidizing gas media it was ascertained that the nature of structural group fractions of mineral oils was not of importance for their antiwear and antifriction properties. Oxygen has an influence similar to that of sulphur compounds active in relation to steel in the presence of which the wear increases at low loads and decreases at high loads. There are 2



Card 2/3


Antiwear and Antifriction Properties of  
Structural Group Fractions of Mineral Oils

S/152/60/000/006/001/001  
B024/B076

figures, 2 tables, and 12 Soviet references.

ASSOCIATION: Voyennaya ordena Lenina akademiya bronetankovykh voysk im.  
I. V. Stalina (Order of Lenin Military Academy of  
Armoured Troops imeni I. V. Stalin)

SUBMITTED: December 19, 1959



Card 3/3

PHASE I BOOK EXPLOITATION

SOV/5053

Vsesoyuznaya konferentsiya po treniyu i iznosu v mashinakh. 3d, 1956.

Izno i iznosostoykost'. Antifrictionnyye materialy (Wear and Wear Resistance. Antifriction Materials) Moscow, Izd-vo AN SSSR, 1960. 273 p. Errata slip inserted. 3,500 copies printed. (Series: Ita: Trudy, v. 1).

Sponsoring Agency: Akademiya nauk SSSR. Institut mashinovedeniya. Ed.: M. M. Khrushchov, Professor; Eds. of Publishing House: M. Ya. Kabanov, and S. L. Orlik; Tech. Ed.: T. V. Polyakova.

PURPOSE: This collection of articles is intended for practicing engineers and research scientists.

COVERAGE: The collection, published by the Institut mashinovedeniya, AN SSSR (Institute of Science of Machines Academy of Sciences USSR) contains papers presented at the III Vsesoyuznaya konferentsiya po treniyu i iznosu v mashinakh (Third All-Union Conference on Friction and Wear in Machines) which was held April 9-15, 1958. Problems discussed in 5 main areas: 1) Hydrodynamic Theory of Lubrication and Friction Bearings (Chairman: Ye. M. Gut'yar, Doctor of Technical Sciences); 2) Lubrication and Lubricant Materials (Chairman: G. V. Vinogradov, Doctor of Chemical Sciences); 3) Dry and Boundary Friction (Chairman: S. V. Deryagin, Corresponding Member of the Academy of Sciences USSR, and I. V. Kragel'skiy, Doctor of the Academy of Sciences); 4) Wear and Wear Resistance (Chairman: M. M. Khrushchov, Doctor of Technical Sciences); 5) Friction and Antifriction Materials (Chairman: I. V. Kragel'skiy, Doctor of Technical Sciences). Chairman of the general assembly (on the first and last day of the conference) was Academician A. A. Blagonravov. L. Yu. Fruzanskiy, Candidate of Technical Sciences, was scientific secretary. The transactions of the conference were published in 3 volumes, of which the present volume is the first. This volume contains articles concerning the wear and wear resistance of antifriction materials. Among the topics covered are: modern developments in the theory and experimental science of wear resistance of materials, specific data on the wear resistance of various combinations of materials, methods for increasing the wear resistance of certain materials, the effects of friction and wear on the structure of materials, the mechanism of the sealing of metals, the effect of various types of lubricating materials on melting, abrasive wear of a wide variety of materials and components under many different conditions, modern developments in antifriction materials, and the effects of finish machining on wear resistance. Many personal attitudes are mentioned in the text. References accompany most of the articles.

Misharin, Yu. A., and A. V. Silyakova. Laboratory Investigation of the Antiseizing Stability of Several Materials Used in Worm Gears

170

Semenov, A. P. Problems in the Theory of the Seizing of Metals

174

Semenov, A. P. Comparative Estimate of the Antiseizing Properties of Materials and Their Combinations

184

3. Abrasive Wear. Wear Under Special Conditions of Friction

Rezhordko, M. D. Wear of Steel and Bronze at High Specific Contact Pressures in the Presence of Organic and Monorganic Lubricants and an Abrasive

191

Vasilenko, A. A., V. I. Stetsenko, and Ye. A. Markovskiy. Investigation of the Wear Resistance of Highly Durable Cast Iron

201

Card 8/13

KRIVOSHEIN, G.S.; BEZBOROD'KO, M.D.

Antipitting properties of oils. Khim.i tekhn.topl.i masel 6 no.6:  
47-51 Je '61. (MIRA 14:7)  
(Lubrication and lubricants)

BEZBOROD'KO, M.D.; DAROVSKIKH, A.A.

Evaluation of the resistance of lubricating materials in reducers  
at low temperatures. Khim. i tekhn. topl. i masel. 6 no.10:43-  
47 0 '61. (MIRA 14:11)

(Lubrication and lubricants)



1.9600

S/032/61/027/001/030/037  
B017/B054

AUTHORS: Bezborod'ko, M. D., Shabarov, L. I., Podol'skiy, Yu. Ya.,  
and Vinogradov, G. V.

TITLE: Device for Testing the Wear Resistance and Antifriction  
Properties of Plastic Materials

PERIODICAL: Zavodskaya laboratoriya, 1961, Vol. 27, No. 1, pp. 104-106

TEXT: A device was developed for testing the wear resistance and anti-friction properties of plastic materials. The plastic material is applied to one of the end surfaces of a thin-walled cylindrical tube, and its friction is determined with a metal surface. The moment of friction is determined tensometrically. The resistance of caprone and Fluoroplast-4 to wear by 40 X (40Kh) steel was established by determining the friction coefficients. Results showed that the friction coefficients increased with time, then slowly dropped, and finally remained constant. This course of change can be explained by an increase in temperature of the contact surfaces. There are 3 figures and 3 Soviet references.

Card 1/1

15.6700

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S/179/62/000/002/008/012

E194/E435

AUTHORS: Bezborod'ko, M.D., Vinogradov, G.V. (Moscow)  
TITLE: Friction and wear of steel in the presence of metallic  
and copper sulphide powders  
PERIODICAL: Akademiya nauk SSSR. Izvestiya. Otdeleniye  
tekhnicheskikh nauk. Mekhanika i mashinostroyeniye,  
no.2, 1962, 75-83

TEXT: The results are described of 4-ball machine tests carried out with a) dry powders of copper, nickel, iron, tin (as used in cermet manufacture), aluminium and brass; b) the powders in the form of pastes or suspensions in two different mineral oils and in glycerine; c) iron powder modified on the surface by phosphiding and sulphiding. At very high contact loads powders of copper, copper sulphide and some other metals have very good anti-wear properties and greatly improve the anti-wear properties of mineral oils. The presence of a liquid lubricating medium lowers the very high friction of powders. Suspensions of phosphided and sulphided iron powder in oils behave similarly to the usual organic phosphorus and sulphur additives in lubricants. Card 1/2

Friction and wear ...

S/179/62/000/002/008/012  
E194/E435

Lubricants which actively promote surface reactions with metal greatly reduce the friction and wear of hardened steels in the presence of metallic powders such as those of nickel and iron. An important function of the lubricant is to modify the wear products (metal particles) so that not only are friction and wear of hardened steel in their presence greatly reduced but also that the wear products themselves become able to act as anti-scuffing additives in the oils. The experimental data presented is of interest in connection with friction and wear of cermets, combinations of lubricants and certain metal powders, and the interaction between lubricant and wear products. There are 9 figures.

SUBMITTED: March 16, 1961

Card 2/2

S/191/62/000/005/010/012  
B110/B101

157. D200  
AUTHORS: Bezborod'ko, M. D., Vinogradov, G. V., Shabarov, L. I.  
TITLE: Friction and wear of plastic at high contact pressures  
PERIODICAL: Plasticheskiye massy, no. 5, 1962, 53-57

TEXT: Friction was studied at point contact of 19.05 mm diameter balls made from: (1) phenol-formaldehyde resin, (2) glass plastic АГ-4 (AG-4) on the basis of phenol-formaldehyde resins (~60% glass fiber of 5-7  $\mu$  diameter), (3) phenol-formaldehyde resin with ~60% sulfite cellulose, (4) metal balls from ВХ-6 (ShKh-6) steel with 62 R<sub>C</sub> hardness. Under 5-100 kg loads the following lubricants were used: (1) the nonpolar naphthene paraffin fraction of ННГ-МС-20 (NPF-MS-20) oil, both pure and with 2% by weight admixtures of tributyl phosphite and "khloref 40"; (2) castor oil and molten stearic acid; (3) cumene; (4) water and aqueous solutions of high heat capacity and thermal conductivity, (5) glycols and multivalent alcohols. The minimum load giving rise to irreversible deformations, served as a criterion for lubricant efficiency. Only a slight effect of the lubricants was found for the pair plastic-plastic.

Card 1/2

Friction and wear of plastics at ...

S/191/62/000/005/010/012  
B110/B101

For the pair steel-plastic, intensive wear and surface destruction were observed when using the following lubricants: water; aqueous 5% solution of tartaric acid, citric acid, pentaerythrite, trimethylol ethane; phenol melt and alcoholic solution of formaldehyde resin. Corrugation of the smooth surface was found for lubricant LIAMATIM-201 (TsIATIM-201), Hrc MC-20 (Npf MS-20), Npf MS-20 + 2% khloref 40, Npf MS-20 + 2% tributyl phosphite, castor oil, ethylene glycol, diethylene glycol and glycerin. Here glycerin proved best, since the diameter of the depression did not increase and the surface of the plastic balls remained smooth over the total load range, even for 5-6 hr. The anti-wear and anti-friction properties of glycerin for the pair steel-plastic may be ascribed to modification of the steel surface (regeneration of the oxide layers and formation of ferrous glycerates). There are 6 figures and 1 table.

Card 2/2

BEZBOROD'KO, M.D.; VINOGRADOV, G.V.; KRIVOSHEIN, G.S.; LIAN GO-LIN'  
[Liang Kuo-lin]; PODOL'SKIY, Yu.Ya.

Investigating wear-preventing properties of lubricants under  
rolling-friction conditions. Tren.i izn.mash. no.15:420-431 '62.  
(MIRA 15:4)

(Lubrication and lubricants—Testing)

BEZBORODKO, M.D.; KRIVOSHEIN, G.S.

Investigating the pitting on a four-ball testing machine. Tren.1  
izn.mash. no.16:5-23 '62. (MIRA 15:4)  
(Mechanical wear--Testing)

KRIVOSHEIN, G.S.; BEZBOROD'KO, M.D.

Evaluating the effect of lubricants on the development of pitting.  
Zav.lab. 28 no.3:356-358 '62. (MIRA 15:4)  
(Lubrication and lubricants--Testing)  
(Corrosion and anticorrosives)



S/683/62/000/000/008/020  
E194/E155

AUTHORS: Bezborod'ko, M.D., Vinogradov, G.V.,  
Podol'skiy, Yu.Ya., and Shabarov, L.I.

TITLE: Four-ball friction machines and modifications of them  
for studying the anti-frictional properties and wear  
resistance of plastics

SOURCE: Metody ispytaniya na iznashivaniye; trudy soveshchaniya,  
sostoyavshegosya 7-10 dek. 1960. Ed. by  
M.M. Khrushchov. Moscow, Izd-vo AN SSSR, 1962. 81-88

TEXT: Plastic parts are now being extensively used under  
conditions of sliding with a wide range of loads and speeds. They  
differ from metals in that their thermal conductivity is low, in  
that they tend to be of uniform structure throughout, and in that  
lubricant additives may not act on them in the same way as they do  
on metals. The sliding properties of plastics should be studied on  
various materials and with various kinds of lubrication. Four-ball  
machines can be used, or fixtures adapted for testing two hollow  
cylindrical specimens in edge contact which can be fitted either in  
a four-ball machine or in a normal drilling machine. A detailed  
Card 1/2

Four-ball friction machines and ...

S/883/62/000/000/008/020  
E194/E155

description is given of the fixture for making friction tests between two hollow cylinders. The test specimen being insulated from the machine shaft and from the frame, it is possible to study electrical effects in friction, or the influence of electric current on friction between plastic and metal. The frictional torque is measured by a strain gauge arrangement. In testing, it is important to ensure that the quality of surface finish and contacting of the specimens throughout the surface is uniform. Surface finish is examined with a binocular microscope and plastic specimens may be polished by running-in against a lubricated metal specimen. With the equipment described it was possible to test thermoplastic and thermosetting materials, including reinforced plastics at specific pressures in the range 2.5 to 300 kg/cm<sup>2</sup> for flat specimens and up to 8000 kg/cm<sup>2</sup> in the case of plastic balls at sliding speeds ranging from 0.1 to 20 m/sec. The frictional systems could be operated at temperatures up to 200 °C by circulating a heat-transfer medium. Test results obtained with various combinations of plastics, metals and lubricants are described and it is shown that the anti-frictional properties and wear-resistance of plastics sliding on metals depend very greatly on the nature of the lubricant.

Card 2/2

There are 6 figures.

S/883/62/000/000/015/020  
E194/E155

AUTHORS: Vinogradov, G.V., Podol'skiy, Yu.Ya., and  
Bezborod'ko, M.D.

TITLE: The use of point-contact friction machines to assess  
wear of metals and the wear- and friction-reducing  
properties of lubricants

SOURCE: Metody ispytaniya na iznashivaniye; trudv soveshchaniya,  
sostoyavshegosya 7-10 dek. 1960. Ed. by .  
M.M. Khrushchov. Moscow, Izd-vo AN SSSR, 1962. 152-163

TEXT: Point-contact friction machines such as four-ball, two-  
ball and two-cylinder types are useful for fundamental work on  
friction and wear, besides their more usual practical applications.  
Accordingly, the Institut neftekhimicheskogo sinteza (Institute of  
Petrochemical Synthesis) has developed an integrated series of  
such machines and this article reviews their published descrip-  
tions and the principal results which have been obtained with them,  
Machine MT-5 (MT-5) is a two-ball machine; the rest can use  
either four balls or two cylinders. Machine MT-2 is used at medium  
speeds and moderately high temperatures. The upper frictional  
Card 1/3

The use of point-contact friction ...

S/883/62/000/000/015/020

E194/E155

element is driven at speeds in the range 50 - 1200 r.p.m. by a hydraulic motor, and loads up to 500 kg are applied hydraulically to the lower elements. The frictional elements can be thermostatted or operated in a controlled atmosphere. Machine MT-3 is used for high speeds (up to 20 000 r.p.m.). A lever loading device is used at low speeds because of its sensitivity, and hydraulic loading at higher speeds to overcome vibration difficulties in the lever system. Lubricant can be circulated during test. Machine MT-4 is used for tests in vacuo or in atmospheres of special gases in the speed range up to 3000 r.p.m. with temperatures up to 500 °C. The brake is in the vacuum chamber and torque is measured by strain gauges. Two-ball machine MT-5 in which both balls can be driven, the lower one at a low speed, is used when it is required to produce sufficient wear material for analysis. It offers a wide range of sliding speeds which is useful in studies of cold welding and other methods of working materials under pressure. Vacuum and special gas atmospheres are also possible with machine MT-6, which differs from MT-4 in that very low sliding speeds and higher temperatures can be used. The test temperature can be varied during the test

Card 2/3

The use of point-contact friction... S/883/62/000/000/015/020  
E194/E155

according to a pre-set programme. The following conclusions have been drawn from published work carried out in this series of machines. Under severe conditions the lubricating properties of refined naphthenic oils depend mainly on viscosity. The presence of oxygen or oxidation products greatly improves performance under boundary lubrication conditions and can help to prevent seizure. An important function of lubricants is to deliver oxidants to the friction zone, and this is why seizure may be more catastrophic in oil baths than with thin film lubrication. Studies have been made of the modes of action and limitations of sulphur-, chlorine- and phosphorus-containing additives, of changes in the metal surfaces, of the effect of additives in modifying wear debris, and of the effect of soft and hard particles suspended in the oil. Studies have been made of various salts as lubricants. The mechanism of abrasive wear has been studied. There are 5 figures and 1 table.

Card 3/3

S/122/63/000/001/008/012  
D263/D308

AUTHOR: Bezborod'ko, M.D., Candidate of Technical Sciences,  
Docent

TITLE: Checking the development of pitting with lubricating  
materials

PERIODICAL: Vestnik mashinostroyeniya, no. 1, 1963, 48-51

TEXT: The author reviews the causes of pitting and various  
methods for its investigation. It is stated that the part played by  
lubricating substances before the first stage of pitting (formation  
of pre-pitting fatigue cracks on the surface) is to secure the opti-  
mal friction conditions on the contact surfaces in order to prevent  
formation of cracks in the second stage, the development of cracks  
is conditioned by the wedging action of lubricants. By introducing  
various additions to the lubricants, chemical compounds with the  
metal are formed which can check the growth of pitting. Experiments  
with various additions reveal that a varying degree of success may  
be achieved. There are 2 figures and 12 references.

Card 1/1

BEZBOROD'KO, M.D.; SOLOMENKO, I.I.; GALIZIN, M.I.

Lubricating capacity of preservative oils. Khim. i tekhn. topl.  
i masel 8 no.12:55-58 D '63. (MIRA 17:1)

I. 8919-65 EWT(m)/EPF(c)/EPR/EPF(j)/T/EPF(q)/EPF(b) Pc-L/Pq-L/Pr-L/Ps-L JL/  
 ACCESSION NR: AP4045021 WW/DJ/RM/WH 8/0191/64/000/009/0026/0032

AUTHOR: Bezborod'ko, M. D.; Shabarov, L. I.

TITLE: Friction of steel on plastics B

SOURCE: Plasticheskiye massy\*, no. 9, 1964, 26-32

TOPIC TAGS: steel plastic friction, friction coefficient, sliding velocity, glass reinforced plastics, thermoplastics, ebonite, methylmethacrylate, glass transition temperature

ABSTRACT: Because there is/always a temperature increase observed on the metal-plastic friction<sup>2</sup> surface, it is necessary to study this phenomenon in order to select correct working conditions and to evaluate the role of the lubricant.<sup>1</sup> Therefore, the friction was studied at varying loads for the butt face of a hollow cylinder (made of 40Kh stainless steel) and<sup>2</sup> glass-reinforced plastics<sup>1</sup> having an AG-4<sup>1</sup> phenol-formaldehyde resin base, which contains 25% polyamide resin (P-75)<sup>2</sup> and 33-18<sup>2</sup> glass-reinforced plastics with epoxide resin<sup>1</sup>. All the glass-reinforced plastics contained 60% glass fibers.<sup>1</sup> The friction of steel with thermoplasts was studied using polymethacrylate<sup>1</sup> and ebonite<sup>1</sup> which were chosen because of their low glass-transition temperature. The

Card 1/3



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ACCESSION NR: AP405021

friction study was conducted on dry surfaces, in the presence of water, glycerine, and high-quality MS-20 oil (naphtheneparaffin fraction), and at a sliding velocity range of 0.0122 to 1.17 m/sec. The friction was measured at transitions from small to large loads without changing the sample and on a surface area of 78 mm<sup>2</sup>. The dependence of the coefficient of friction and the temperature on time, the dependence of the friction surface heating and the coefficient of friction on load P, the dependence of the friction surface heating on the sliding velocity, and the effect of the sliding velocity on the heating of steel were studied for glass-reinforced plastics and thermoplastic resins. It was found that at low sliding velocities the lubricant has little influence on the friction between steel and plastics. An increase in the sliding velocity in the absence of lubricants leads to a decrease in the coefficients of friction, brought about as a result of melting of the plastic in the zone of contact with metal. Lowering of friction in the presence of a lubricant is accomplished by a softening of the thermoplastic and chemical modification of the contact surface during friction between the steel and the glass-reinforced plastic. In all cases, the decomposition of thermoplastics was a result of heating of the friction surface above the glass-transition temperature and softening of the contact surface. Orig. art. has: 11 figures.

Card 2/3

L 8919-65

ACCESSION NR: AP405021

ASSOCIATION: none

SUBMITTED: 00

ATD PRESS: 3110

ENCL: 00

SUB CODE: ME, FP

NO REF SOV: 006

OTHER: 000

Card 3/3

BEZ BOROD'KO, M.D.; SOLOMENKO, I.I.

Friction machine for testing the lubricating performance of  
oil fogs. Zav. lab. 30 no.5:616-617 '64. (MIRA 17:5)

L 10524-65 EWT(m)/EPP(c)/T Pr-4 AFETR DJ

ACCESSION NR: AP4036982

S/0065/64/000/005/0061/0065

AUTHORS: Bezborod'ko, M. D.; Solomenko, I. I.

TITLE: The effect of spraying on the lubricating properties of oils

SOURCE: Khimiya i tekhnologiya topliv i masel, no. 5, 1964, 61-65

TOPIC TAGS: lubricant, lubricating oil, spraying, atomizing, lubricity, critical load, oxidation, antiseize property

ABSTRACT: A comparison was made of the lubricity of oils applied by spraying and by immersion to the working surface of the friction parts of reducing gears. The comparison was based on the critical load ( $P_K$ ) that could be applied. MT-16P, AU<sup>8</sup> and MK-8//oils were tested on ShKh-15 steel from 20-200C, and it was found that  $P_K$  decreased as oil temperature increased; but if the oil was sprayed, the critical load ( $P_K^i$ ) was higher than if the gears were immersed in oil. This difference is attributed to the action of atmospheric oxygen which is increased by spraying. The oxide film formed is softer than the tempered steel, and this reduces friction and inhibits seizing of the friction surface. It was also found that  $P_K^i/P_K$  increases with temperature, approaching a value of 1.5-2 at 150-200C. Tests which

Card 1/2

L 70524-65

ACCESSION NR: AP4036982

conducted with a limited access of air to the reducing gear housing, or in a nitrogen atmosphere, confirmed the large role of oxygen in improving the lubricating properties of the oils. Under the nitrogen atmosphere  $P_K$  was reduced 68% at 100C and 36% at 150C. The effect of oxygen on lubricity is less in oils containing antiseize additives than in oils without additives. A comparison of commercial oils showed in each case that the critical load throughout the 20-200C range was somewhat higher for gears lubricated by spraying than those lubricated by immersion. In the synthetic oils (long chain alcohols)  $P_K$  is almost independent of temperature. MK-8 surpasses MT-16p if compared at the same viscosity, possibly because the latter contains a monofunctional additive with antioxidant components. The addition of an antiseize additive to MK-8 increases its  $P_K$  by about 5 times. Orig. art. has: 5 figures.

ASSOCIATION: None

SUBMITTED: 00

ENCL: 00

SUB CODE: FP

NR REF SOV: 005

OTHER: 000

Card

2/2

ROBERT L. W. ...

... (MIP: 17/10)

L 27339-66 EWT(m)/EWP(w)/EWA(d)/EWP(j)/T/EWP(t) IJP(c) JD/DJ/GS/RM  
 ACC NR: AT6008939 (A) SOURCE CODE: UR/0000/65/000/000/0006/0014  
 AUTHORS: Bezborod'ko, M. D.; Shabarov, L. I. 45  
 ORG: none B+1  
 TITLE: Peculiarities of friction of metals along plastics in lubricating media  
 SOURCE: Moscow. Institut mashinovedeniya. Plastmassy v podshipnikakh skol'zheniya; issledovaniya, opyt primeneniya (Plastics in friction bearings; research and experiment in application). Moscow, Izd-vo Nauka, 1965, 6-14, 15  
 TOPIC TAGS: lubricant, friction, friction coefficient, mineral oil, polyamide, material testing, plastic, glycerine, steel, caprone/ 40Kh steel, AK-7 polyamide, P6 polyamide, MS-20 mineral oil, AU mineral oil  
 ABSTRACT: Experiments on the frictional characteristics of plastics and metals were performed. The object of the investigations was to determine the conditions leading to softening, deformation, and destruction of the plastics. The tests were also aimed at the development of an approach to the resolution of the questions of fixing limits of serviceability of plastics and of selecting lubricating materials. The experiments were conducted on a machine which provided friction between the planar surface of a steel cylindrical ring on the planar surface of a plastic specimen. Metal specimens were prepared from 40Kh steel; plastic materials were caprone, polyamides P-6 and AK-7, organic glass, and ebonite. Lubrication of  
 Card 1/3 15 15 15 15 2

L 27339-66

ACC NR: AT6008939

rubbing surfaces was provided by mineral oils; MS-20, AU oil, solidol, and, in certain tests, glycerin and water. The first series of tests was performed without lubrication, and the results are shown in Fig. 1. In general, these tests bear out

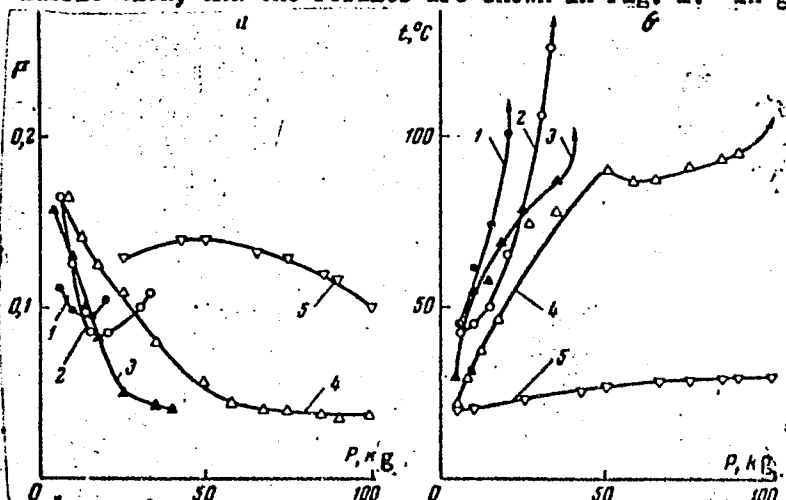


Fig. 1. Friction of steel on plastics without lubrication. a - variation of friction coefficient with loading; b - variation of the temperature of surface friction with loading; 1 - polyamide AK-7 ( $v = 0.73$  m/sec); 2 - caprone ( $v = 0.73$  m/sec); 3 - 5 - organic glass ( $v = 0.012$  m/sec).

the fact that increasing loads cause increasing temperatures and diminishing friction coefficient in the "dry" condition. Later tests compare the friction characteristics which occur for various combinations of materials, loading, and selections of

Card 2/3



L 27339-66

ACC NR: AT6008939

lubricants. The tests led to the following conclusions: 1) heating of rubbing surfaces is critical in determining serviceability. The degree of plastic surface heating must be less than the temperature of vitrification; 2) the serviceability limits are greatly increased through surface lubrication and improved heat exchange. Orig. art. has: 5 figures.

SUB CODE: 11/ SUBM DATE: 31Jul65/ ORIG REF: 006

Card 3/3

MIROSHNIKOVA, L.M., assistant, BEZBOROD'KO, S.V., vrach

Riboflavin and its use in treating eye diseases. Oft.zhur. 13  
no.3:140-142 '58 (MIRA 11:6)

1. Iz kafedry glaznykh bolezney (zav. - chlen-korrespondent  
AMN SSSR prof. I.I. Merkulov) i Ukrainskogo nauchno-issledovatel'skogo  
instituta glaznykh bolezney im. prof. Girshmana (direktor - chlen-  
korrespondent AMN SSSR prof. I.I. Merkulov).  
(CORNEA--DISEASES)  
(RIBOFLAVIN)

BEZBORODNIKOV, M.F.

One application of the principle of compressed mappings to the  
function theory of complex variables. Uch.zap.Ped.inst.Gerts.

103:209-216 '55.

(MIRA 10:3)

(Functions of complex variables)

BEZBORODNIKOV, M.F.

Applying the method of interpolation with corrections to the  
approximate synthesis of mechanisms. Trudy Inst.mash.Sem.po  
teor.mash. 20 no.77:11-26 '59. (MIRA 13:4)  
(Mechanical engineering)

BEZBORODNIKOV, M. F.

Best approximation of functions of several variables by polynomials. Izv. vys. ucheb. zav.; mat. no.4:3-12 '62.  
(MIRA 15:10)

1. Sterlitamakskiy gosudarstvennyy pedagogicheskiy institut.

(Functions of several variables)  
(Polynomials)

BEZBORODNIKOV, M.F. (Sterlitamak)

Multiple generalized sieve and some of its applications.  
Volzh. mat. sbor. no.1:232-237 '63. (MIRA 19:1)

BEZBORODOV, A.

"Indicator microbes." Tr from the Russian. p. 371

"Horthy's health policy resulted in cripples, gnomes, and suicides." p 372

"The main value in our people's democracy is the man." p. 372

(Termesztet Es Technika, Vol 112, No 6, June 1953, Budapest)

SO: Monthly List of East European Accessions, Vol 3, No 2 Library of Congress Feb 54 Uncl





1100

28760

S/122/61/000/009/004/009  
D298/D305

AUTHORS: Satel', E.A., Honored Scientist and Technologist,  
Doctor of Technical Sciences, Professor, Podurayev,  
V.N., Candidate of Technical Sciences, Docent,  
Kamalov, V.S., Engineer and Bezborodov, A.M.  
Engineer

TITLE: Technological possibilities and the prospects  
for applying vibrational machining

PERIODICAL: Vestnik mashinostroyeniya, no.9, 1961, 51-57

TEXT: When high alloy tenacious steel (including heat-resis-  
ting and rustproof alloys) is machined, the shavings emerge,  
as a rule, in compact pieces. Such shavings complicate the  
operation of automatic metal-cutting machines; subsequent re-  
moval and transporting of shavings and their processing are  
difficult. The methods used at present for breaking them are

Card 1/4

28250

Technological possibilities ...

S/122/61/000/009/004/009  
D298/D305

not universal and reliable. For this reason, the method of vibrational machining has been chosen, as it ensures reliable and stable breaking of shavings irrespective of the materials used. The authors analyze in detail this method and give pertinent diagrams and layouts for it. Particular attention is devoted to the process of machining when vibrations are applied in the direction of the work piece feed. In Figure 1 a layout of a hydraulic vibration support is given; this device permits regulating the vibration frequencies and amplitudes. To excite the vibration a hydraulic motor, type ГГ-83 (GG-V3) and a DC electric motor with transformer ГЗ-83 (GE-V3) can be used. For laboratory research, vibrators ГГ-В and ЭГ-В (GG-V and EG-V) are used. They are provided with an auto-vibrating mechanical support having the following characteristics: Vibration frequency 20-100 hertz; vibration amplitude 0.05-1.00 mm. The advantages of this support, as compared to other designs, are

Card 2/4

Technological possibilities ...

<sup>28160</sup>  
S/122/61/000/009/004/009  
D298/D305

enumerated by the authors as follows: 1) It breaks the shavings formed during the process of machining. 2) It permits decreasing cutting forces and the temperature in the zone of cutting. 3) It enables diminishing the action of plastic deformation. 4) It permits shifting phases between the work piece and the instrument front angle. 5) It contributes to the appearance of local fatigue in the work piece. 6) It improves working conditions due to diminishing loads on the instrument cutting edge. When vibration amplitude is equal to the feed value per turn, the average temperature during the cutting drops by 25%. An important role is played by the intensification of fatigue determined by variable angles of cutting. When vibration frequency attains a supersonic value, the cutting speed may be considerably increased. There are 10 figures and 10 Soviet-bloc references. *X*

Card 3/4

BEZBORODOV, A.M., inzh.

Scientific conference of institutions for higher education on  
automation and mechanization of production processes in the  
machinery industry. Vest. mash. 41 no. 5:85-86 My '61.

(MIRA 14:5)

(Automation—Congresses)

(Machinery industry—Technological innovations)

SATEL', E.A., doktor tekhn.nauk, prof., zasluzhennyy deyatel' nauki i  
tekhniki; PODURAYEV, V.N., kand.tekhn.nauk, dotsent; KAMALOV, V.S.,  
~~inz.~~ REZBORODOV, A.M., inzh.

Engineering potentialities and the outlook for using vibratory  
turning. Vest.mash. 41 no.9:51-57 S '61. (MIRA 14:9)  
(Turning) (Vibrators)

BEZBORODOV, A.M.

Miraculous "bacillus."  
Nauka i zhizn 19, no. 6, 1952

BEZBORODOV, A.M.

Microbes as Indicators  
Nauka i zhizn' 19, no. 8: 1952

Bezborodov, A.M.

Antibacterial activity of some carotenoids derived from microorganisms. A. M. Bezborodov and V. V. Dobromyslov (Chern.-Pharm. Inst., Leningrad). *Mikrobiologiya* 24, 697-9 (1955).—Carotenoids extd. from *Torula rosea*, *Sporobolomyces roseus*, and *Micrococcus pyogenes* var. *aureus* by MeOH were bactericidal in doses from 1:500 to 1:4000, and bacteriostatic in doses from 1:1000 to 1:16000 (tests *in vitro*). Carotenoids extd. by petr. ether were in general somewhat less active. The tests did not show promise of obtaining therapeutically useful carotenoids by this route. Test organisms included *Bacillus subtilis*, *B. mycoides*, *Escherichia coli*, *M. pyogenes* var. *albus*, *M. pyogenes* var. *aureus*, and a diphtheroid bacterium. Julian F. Smith.

(2)



Bezborodov, A.M.

✓ Carotenoid pigments of fungi and bacteria. A. M.  
Bezborodov. *Uspekhi Sovremennoi Biol.* 39, 154-62 (1955).  
MD — The subject is reviewed under the subtitles: initial  
products of biosynthesis of carotenoids, influence of minerals  
on their production, their function, and their biosynthesis.  
M. M. Piskur

BEZBORODOV, A.M.

USSR / Pharmacology, Toxicology, Chemotherapeutic Agents

U-7

Abs Jour : Ref. Zh. Biol., No 2, 1958, No 8109

Author : Kashkin, P.N., Bezborodov, A.M., Yelinov, N.P., Kashkin, K.P., Marchenkova, F.G., Tzyganov, V.A., Yamshohikov, V.P.

Inst :

Title : Materials on the Analysis of Failures in Antibiotic Therapy

Orig Pub : V. Sb. Antibiotiki. Eksperim.-Klinich. Izuch. M., 1958, 274-290

Abstract : Among the causes for failure in antibiotic therapy, the authors have emphasized bacterial resistance, appearance of moniliasis, and hormesis. An increased resistance to antibiotics is also characteristic of the facultative pathogens which more frequently develop a group tolerance. The streptomycin and biomyoin resistant microorganisms

Card : 1/3

USSR / Pharmacology, Toxicology, Chemotherapeutic Agents

U-7

Abs Jour : Ref. Zh. Biol., No 2, 1958, No 8109

Abstract : undergo more profound and more stable biochemical changes than those resistant to penicillin, levomycin, and sintomycin. Most of the resistant strains have a decreased tolerance to warming, alcohol, and antiseptic solutions. Alongside the highly resistant strains, dependant strains appear as a result of adaptation, especially among the tubercle bacilli, which grow luxuriously on media saturated with proper antibiotics. Yeast-like organisms of the genus Candida are frequently responsible for fatal complications in patients with dysentery and pneumonia. Monilia infections affect the mucous membranes of the oral cavity, larynx, vagina and the large skin folds; less frequently ulcerative lesions in the alimentary tract and focal pulmonary involvement are encountered. Streptomycin, penicillin, sintomycin, levomycetin, biomycin and sakazin proved to be ineffective in the treatment of moniliasis. Gramicidin-C, aspergillin and aspergin demonstrated some effectiveness. Streptomycin, penicillin and

Card : 2/3

USSR / Pharmacology, Toxicology, Chemotherapeutic Agents

U-7

Abs Jour : Ref. Zh. Biol., No 2, 1958, No 8109

Abstract : aureomycin in various concentrations have, actually, increased the growth of *Candida* in special test-tube experiments. Rabbits with experimental moniliasis succumbed to infection after 2 - 5 days if treated with penicillin, streptomycin, biomycin or levomycin, and after 30-35 days if untreated. The phenomena of hormesis, i.e. the destruction of the normal microflora of the skin and mucous membranes, is associated with irrational antibiotic therapy. A number of patients demonstrated absence of coliform bacilli in cultures, proliferation of *Proteus*, alkali-forming and putrefactive microorganisms the toxins of which cause toxemia on reaching the blood stream.

Card : 3/3

*BEZBORODOV, A.M.*

USSR/Microbiology - Medical and Veterinary Microbiology

F-4

Abs Jour : Referat Zhurn - Biol. No 16, 25 Aug 1957, 68585

Author : Kashkin, P.N., Bezborodov, A.M., Zlatkina, K.M.,  
Proskuryakova, M.G., Sluvko, A.L.

Title : Data on the Problem of Variability of Intestinal Bacilli.

Orig Pub : Tr. In-ta Mikrobiol. AN LatvSSR, 1956, No 5, 27-45

Abstract : A culture of intestinal bacilli were cultured on MPA or in a culture of leucocytes with a constantly increasing concentration of antibiotics (streptomycin, levomycetin, syntomycin, biomycin), also together with cultures of soil amoebae. Successively there appear variants which do not form any acid or gas, then cultures related to Baterium paracoli and B. coli citrovorum and, finally, variants of "alkali-producers". In variants adapted to antibiotics retardation of growth is noted in synthetic media containing amino acids. A lowering of catalase activity is manifested in types adapted to antibiotics

Card 1/2

- 57 -

USSR/Microbiology - Medical and Veterinary Microbiology

F-4

Abs Jour : Referat Zhurn - Biol. No 16, 25 Aug 1957, 68585

and an increase in types adapted to soil amoebae. The majority of variants adapted to antibiotics possess a lowered dehydrase activity. The lowering of the content of some organic acids and a change in the composition of amino acids in the variants tested is manifested. The variants lost the ability to agglutinate by the sera of the original types, but some acquired the ability to agglutinate by the sera against other microbes of the intestinal group. The variants adapted to antibiotics demonstrate lowered vitality. A number of isolated variants stubbornly retain the acquired symptoms. The authors point out the significance of adaptive variability of intestinal bacteria as a possible cause of complications in antibiotic therapy and the necessity of accounting for these variations for a correct laboratory diagnosis.

Card 2/2

- 58 -

BEZBORODOV A.M

Features of carotenoid synthesis in yellow *Sarcina*. A. M. Bezborodov (Chem.-Pharm. Inst., Leningrad). *Mikrobiologiya* 25, 25-9(1956).—*Sarcina lutea* can utilize carbohydrates, alcs. (mono- and polyhydric, or cyclic), and org. acids (including amino acids) as starting compds. in the biosynthesis of carotenoids. In the pH range 4.84-8.52 no influence of pH could be observed. Inhibitors include PhOH, resorcinol, Ph<sub>2</sub>NH, and semibacteriostatic doses of antibiotics such as streptomycin, penicillin, aspergin, Aureomycin, or synthomycin; but only Ph<sub>2</sub>NH, among these compds., is fully effective. Use of an inhibited culture as inoculant does not transmit the inhibition. Carotenoid synthesis is essentially anaerobic; it decreases about 90% under aerobic conditions. The pigment formed by yellow *Sarcina* is epiphasic, sol. in org. solvents, melts at 148-50°, and shows max. absorption at 415, 440, and 470 mμ.

Julius P. Smith

Bazdonov, A.M.

Formation of carotenoid pigments by leucocyte granules  
in leucocyte culture  
drafted (S. M. K. ...)  
high ...  
...  
...  
...



BEZBORODOV, A.M.; YELINOV, N.P. (Cand. of Bio. Sci.); KASHKIN, K.P.; MARCHENKOVA, F.G.; TSYGANOV, V.A. (Cand. of Bio. Sci.); YAMSHCHIKOV, V.P.

"Materials on Analysis of Failures in Treatment With Antibiotics,"

p. 274 Ministry of Health USSR Proceedings of the Second All-Union Conference on Antibiotics, 31 May - 9 June 1957. p. 405, Moscow, Medgiz, 1957.

COUNTRY USSR  
CATEGORY Microbiology  
ABS. JOUR Ref Zhur-Biologiya, No. 4, 1959, No. 14633  
AUTHOR Bezborodov, A.M.  
INST. Leningrad Chem. Pharmaceutical Inst.  
TITLE Biochemical properties of microorganisms resistant to antibiotics.  
ORIG. PUB. Sb. nauchn. tr. Leningr. khim.-farmatsevt.  
ABSTRACT in-t, 1957, 3, 73-91  
: No abstract

CARD:

1/1

7

COUNTRY : USSR  
 CATEGORY :  
 ABS. JOUR. : RZhBiol., No. 3 1959, No. 10079  
 AUTHOR : Bezborodov, A. M., Kashkin, K. P., Yamshechikov, V. P.  
 INST. : Leningrad Chemical-Pharmaceutical Institute  
 TITLE : Certain Biochemical Characteristics of Bact.  
Faecalis Alcaligenes Resistant to Antibiotics  
 ORIG. PUB. : Sb. nauchn. tr. Leningr. khim.-farmatsevt. in-t,  
 1957, 3, III-III  
 ABSTRACT : In the adaptation of certain strains of Bacterium  
faecalis alcaligenes to streptomycin and synthomycin  
[chloramphenicol] the morphology of the bacteria was  
 changed. The strains resistant to these antibiotics  
 assumed the form of coccobacteria. The DNA  
 concentration in the strains resistant to synthomycin  
 increased (3-3.5%), and in strains resistant to  
 streptomycin, decreased (1.4-1.7%) compared with the  
 original (2-2.9%). In the resistant strains an increased  
 consumption of pyruvic acid is observed. The strains

Card:

1/2

26

COUNTRY :  
CATEGORY :  
ABS. JOUR. : RZhBiol., No. 1952, No. 10079  
AUTHOR :  
INST. :  
TITLE :  
ORIG. PUB. :  
ABSTRACT : adapted to streptomycin acquired the capacity of  
assimilating glutamic acid. Strains resistant to  
synthomycin formed a yellow pigment of carotinoid  
nature. The strains resistant to synthomycin and  
streptomycin lost the power of reducing nitrates. --  
S. P. Shapovalova

Card: 2/2

Bezborodov, A. M.

USSR/General Division. Congresses. Sessions. Conferences. A-4

Abs Jour : Ref Zhur-Biologiya, No 2, 1958, 4685

Author : A.M. Bezborodov

Inst :

Title : Conference on the Physiology and Biochemistry  
of Microorganism (Moscow, 24-27 April 1957).

Orig Pub : Antibiotiki, 1957, 2, No 3, 60-61

Abstract : No abstract

Card 1/1

BEZBORODOV, A.M.

USSR/ Microbiology, Antibiosis and Symbiosis.  
Antibiotics

F-2

Abs Jour: Ref Zhur - Biol., No 6, 1958, 24148

Author : Bezborodov, A.M., Kashkin, K.P., Yamshchikov, V.P.  
Inst : Not given  
Title : A Comparative Study of Some Biochemical Properties  
of Sensitive and Antibiotic-Resistant Strains of  
Proteus Morgani.

Orig Pub: Zh. mikrobiol., epidemiol. i immunobiologii, 1957,  
No. 3, 108-114

Abstract: Biochemical properties of different strains of  
P. morgani were altered in the process of their  
adaptation to syntomycin (I) and streptomycin (II).  
A decreased DNA content was noted in strains resistant  
to II-- and an increase in those resistant to I,  
by comparison with the original strains. Strains  
resistant to antibiotics acquired the ability to

Card 1/2

USSR/ Microbiology, Antibiosis and Symbiosis.  
Antibiotics

F-2

Abs Jour: Ref Zhur - Biol., No 6, 1958, 24148

Abstract: assimilate aminoacids (glycine, alanine, leucine, lysine,  $\beta$ -phenylalanine, and especially asparagine) unsuited to the initial strains. In the majority of cases, the resistant strains lacked the capacity to form acids or gases on media of "variegated" type and the capacity to form indole. In the process of adaptation to I a strain was obtained which forms a yellow pigment of the carotenoid type. No differences were noted in utilization of amino nitrogen, and changes in the dehydrase activity of resistant or original cultures were not observed.

Card 2/2

BEZBORODOV, A.M.; GREKOVA, V.K.; SEMKINA, L.Ye.; UKHVATOVA, N.M.

Biochemical characteristics of variants of *Escherichia coli* obtained  
through the action of a complete antigen from *Bacillus breslau*.  
Eksp. i klin. issl. po antibiot. 1:79-85 '58. (MIRA 15:5)  
(*ESCHERICHIA COLI*) (*SALMONELLA*)  
(ANTIGENS AND ANTIBODIES)



BEZBORODOV, A.M.; GREKOVA, V.K.; SEMKINA, L.Ye.; UKHVATOVA, N.M.

Biochemical nature of the phenomenon of alkali formation; preliminary  
report. Eksp. i klin. issl. po antibiot. 1:93-98 '58. (MIRA 15:5)  
(ESCHERICHIA COLI) (ALKALIES)

BEZBORODOV, A.M.; GREKOVA, V.K.; SEMKINA, L.Ye.; UKHVATOVA, N.M.

Biochemical nature of the phenomenon of alkali formation; preliminary  
report. Eksp. i klin. issl. po antibiot. 1:93-98 '58. (MIRA 15:5)  
(ESCHERICHIA COLI) (ALKALIES)

TSYGANOV, V.A.; GOLYAKOV, P.N.; BEZBORODOV, A.M.; NAMESTNIKOVA, V.P.; KHOPKO, G.V.;  
SOLOV'YEV, S.N.; MALYSHKINA, M.A.; BOL'SHAKOVA, L.O.

Biology and isolation of the antifungal antibiotic 26/1.  
Antibiotiki 4 no.1:21-26 Ja-F '59. (MIRA 12:5)

1. Leningradskiy nauchno-issledovatel'skiy institut antibioti-  
kov.

(ANTIBIOTICS,  
antibiotic 26/1, fungicidal properties &  
biol. (Rus))

(FUNGICIDES,  
antibiotic 26/1 (Rus))

BEZBORODOV, A.M.

Study of free amino acids in *Actinomyces phaeochromogenes*. *Mikro-*  
*biologiya* 28 no.5:690-696 S-O '59. (MIRA 13:2)

1. Nauchno-issledovatel'skiy institut antibiotikov, Leningrad.  
(AMINO ACIDS chem.)  
(ACTINOMYCES chem.)